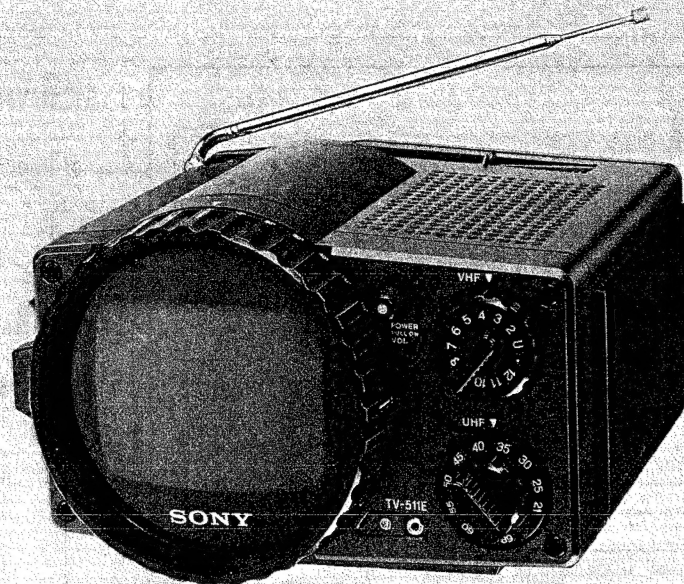


TV-511E




B & W TV


SPECIFICATIONS

Television System:	CCIR system (B, G and H)
Picture Tube:	12.2cm, 5" (screen measured diagonally), 55° deflection
Semiconductors:	28 transistors, 22 diodes and 1 IC
Antennas:	VHF/UHF: Built-in telescopic antenna 75Ω coaxial antenna socket
Channel Coverage:	VHF channels: E 2 – 12 UHF channels: E21 – 69
Intermediate Frequencies:	Picture i-f carrier: 38.9MHz Sound i-f carrier: 33.4MHz
Sound System:	5.5MHz intercarrier Output power: 300mW (max.) Speaker: 7.7cm (3 inches) dia, 32Ω
Automatic Controls:	AFC (automatic frequency control) AGC (automatic gain control)
Anode Voltage:	7.5kV at 60μA beam current
Hochspannung:	7.5kV bei 60μA Strahlstrom
Power Requirements:	220V ac, 50Hz, 13.5V dc, nine batteries size D (IEC Designation R20) 12 V car battery with optional sony car battery cord DCC-16E
Power Consumption:	20W ac (max.) 7W dc (average)
Dimensions:	Approx. 284(w) x 173(h) x 287(d) mm 11 ¹ / ₈ (w) x 6 ⁷ / ₈ (h) x 11 ¹ / ₄ (d) inches
Net Weight:	Approx. 3.5kg (7 lb 11 oz)
Accessories Supplied:	Earphone (ME-20H) AC power cord Battery holder Instruction manual

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND  MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

SICHERHEITSHINWEIS FÜR KOMPONENTEN !!

DIE IN DEN SCHALTBILDERN, DEN IN EINZELTEILE AUFGELÖSTEN PERSPEKTIVISCHEN ZEICHNUNGEN UND DEN TEILELISTEN SCHRAFFIERT EINGEZEICHNETE UND DURCH DAS ZEICHEN  GEKENNZEICHNETE KOMPONENTEN SIND FÜR DIE BETRIEBSSICHERHEIT KRITISCH. DIESE KOMPONENTEN SIND DURCH SOLCHE SONY TEILE ZU ERSETZEN, DEREN TEILENUMMERN IN DIESEM HANDBUCH ODER IN VON SONY HERAUSGEGEBENEN ERGÄNZUNGEN ANGEZEIGT SIND.

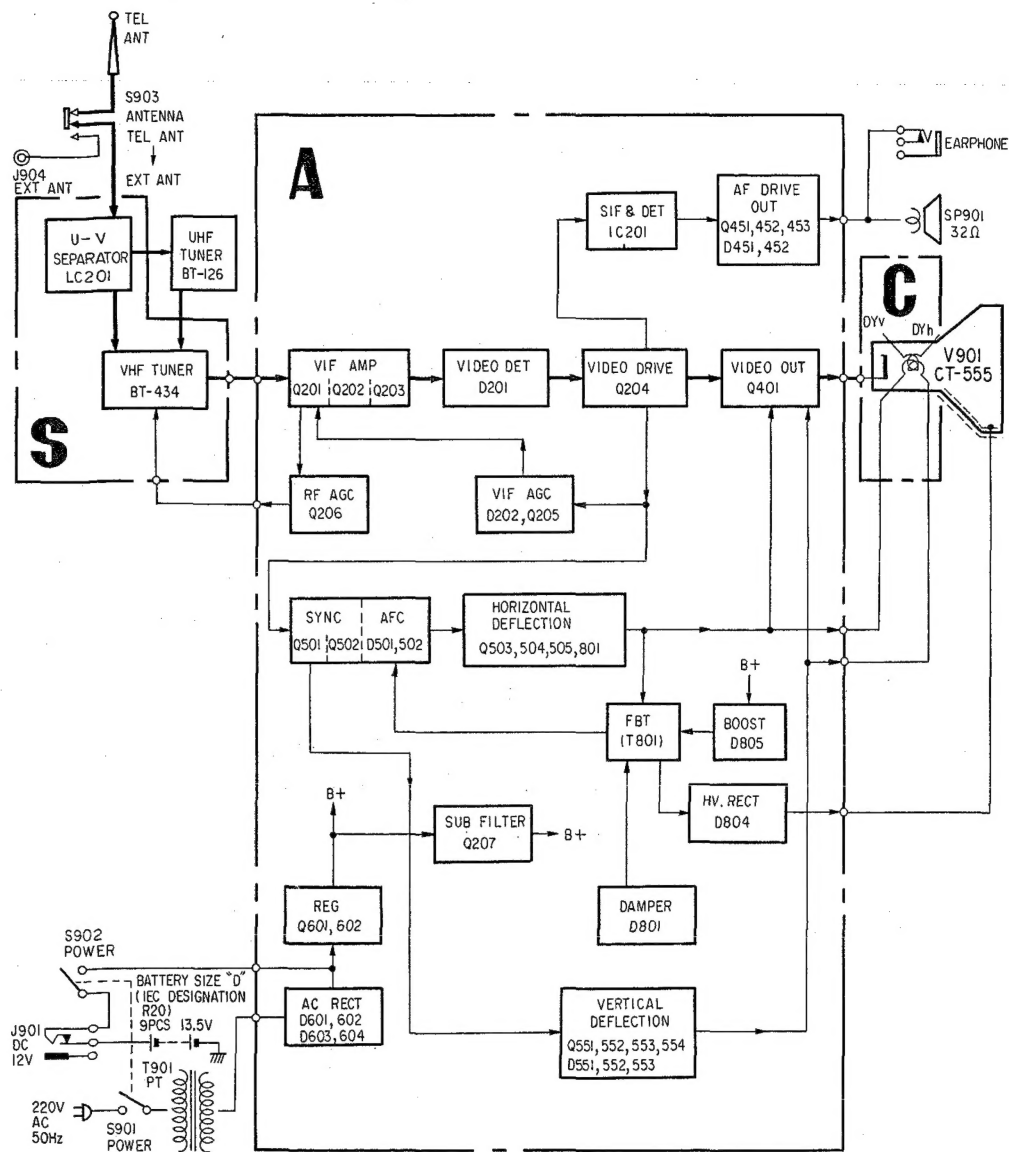
AUF FÜR DIE BETRIEBSSICHERHEIT KRITISCHE SCHALTUNGSEINSTELLUNGEN WIRD IN DIESEM HANDBUCH HINGEWIESEN.

BEFOLGEN SIE DIESE ANWEISUNGEN STETS, WENN KRITISCHE KOMPONENTEN AUSGEWECHSELT WERDEN ODER VERDACHT AUF FUNKTIONSSTÖRUNGEN BESTEHT.

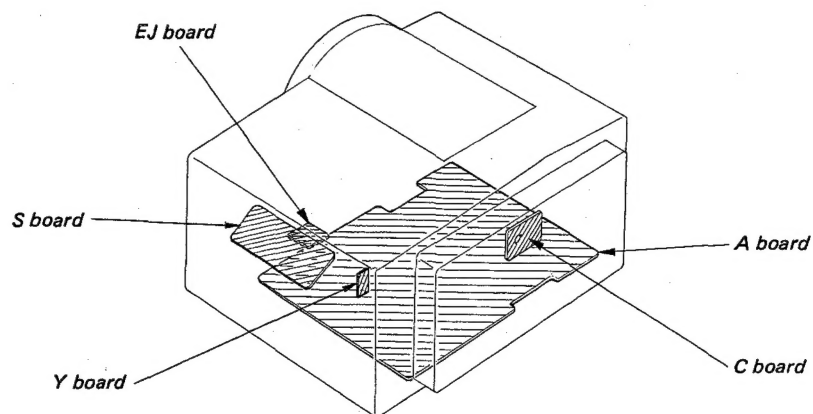
SONY®

SERVICE MANUAL

SECTION 1 BLOCK DIAGRAM



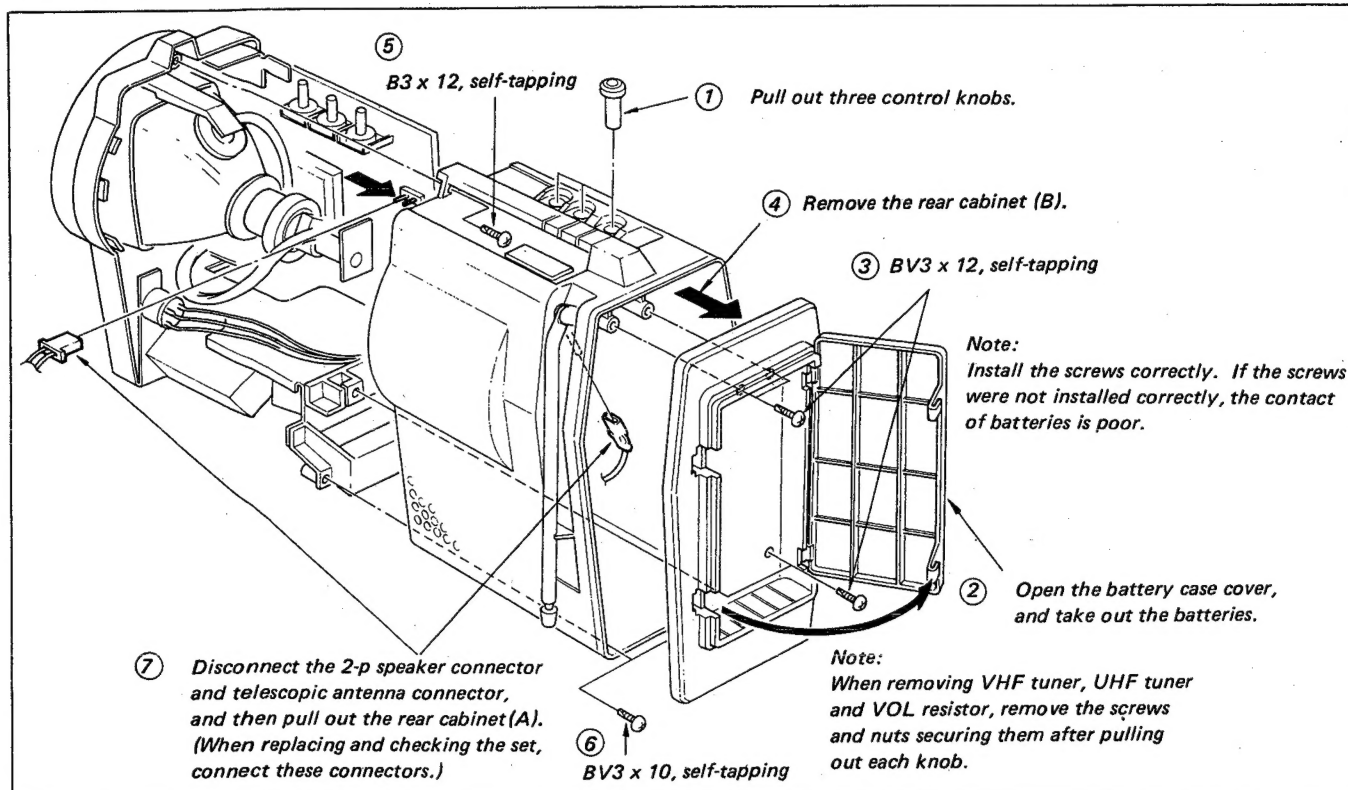
CIRCUIT BOARDS LOCATION



SECTION 2 DISASSEMBLY

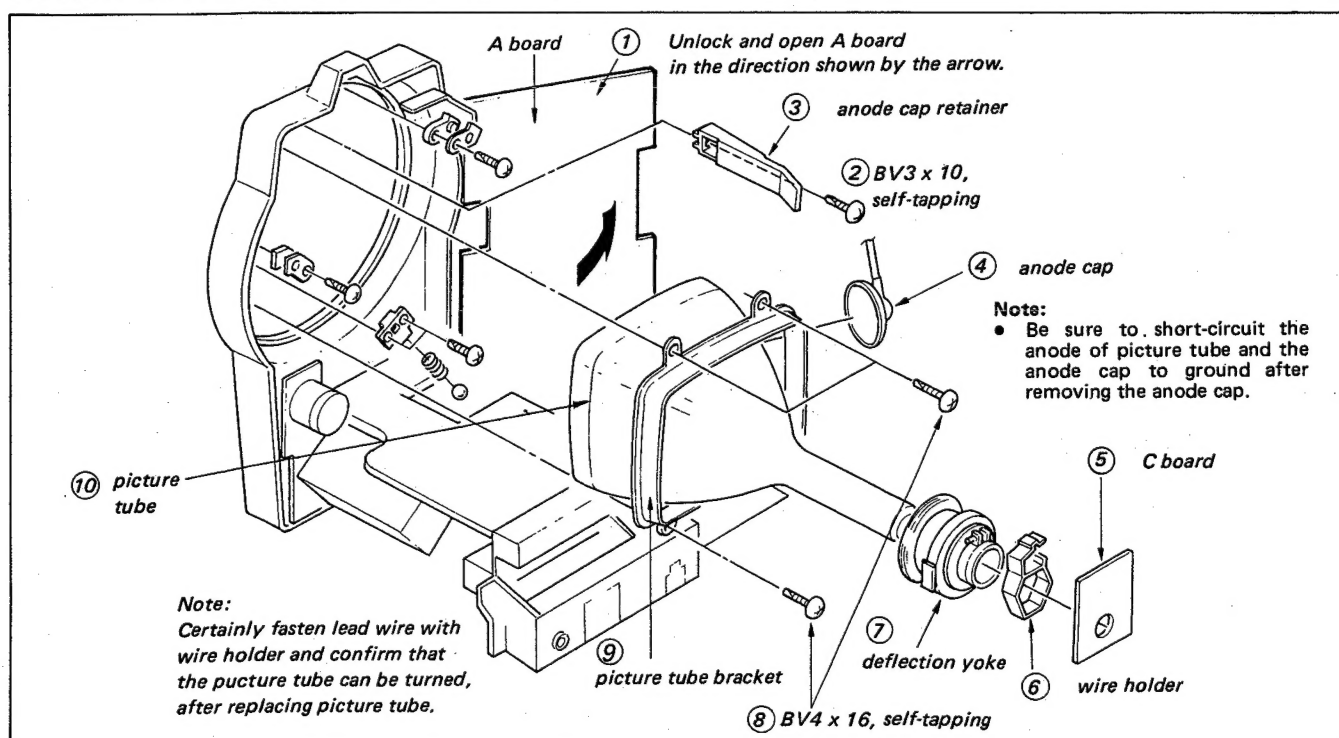
- Note**
- Follow the disassembly procedure in the numerical order given.
 - When removing the rear cover, take out all the screws around marked \Rightarrow on it.
 - All screws are Phillips (cross recess) type unless otherwise noted. (—) = slotted head.

2-1. CABINET REMOVAL



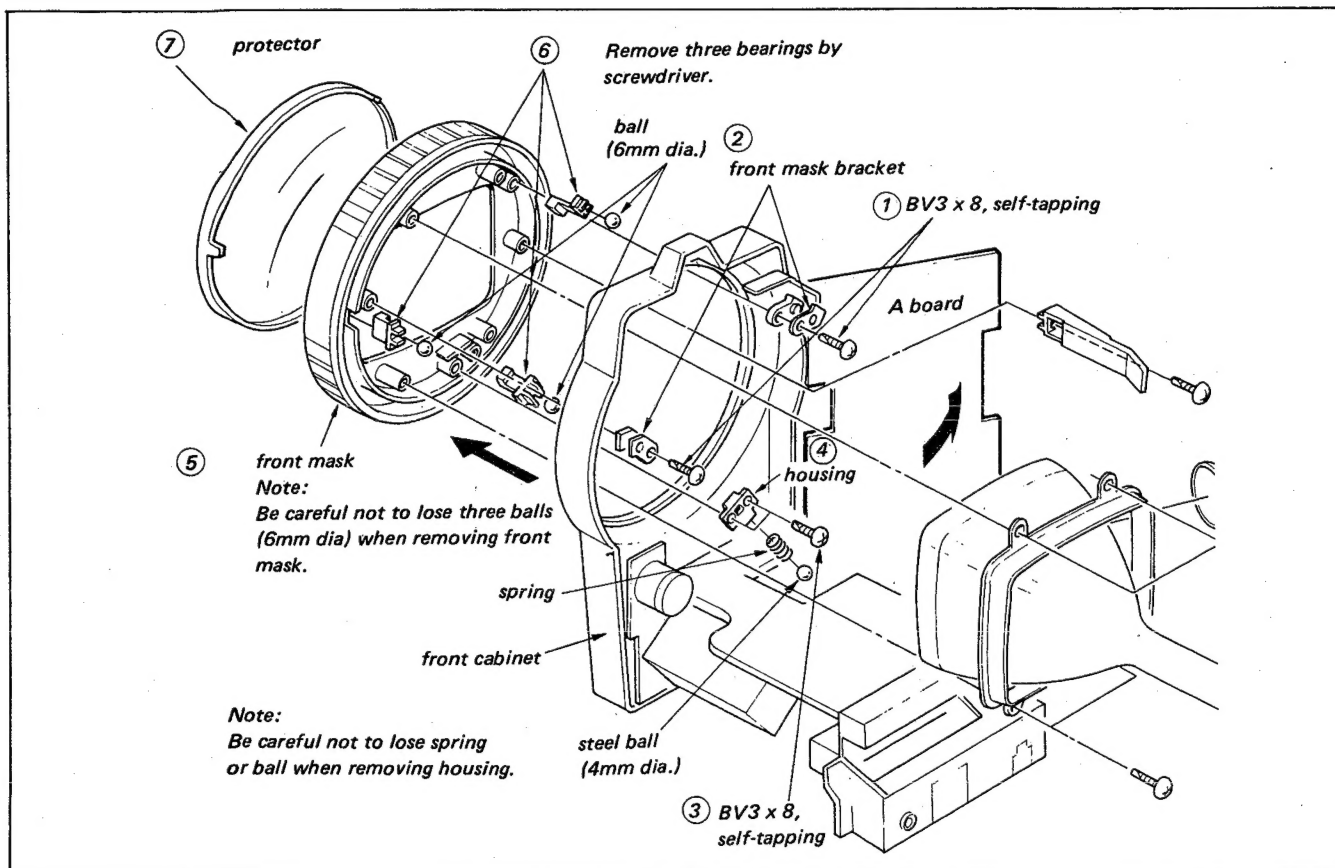
2-2. PICTURE TUBE REMOVAL

Proceed to the following steps after cabinet removal.



2-3. PROTECTOR REMOVAL

Remove picture tube from the front cabinet and then proceed to the following steps.



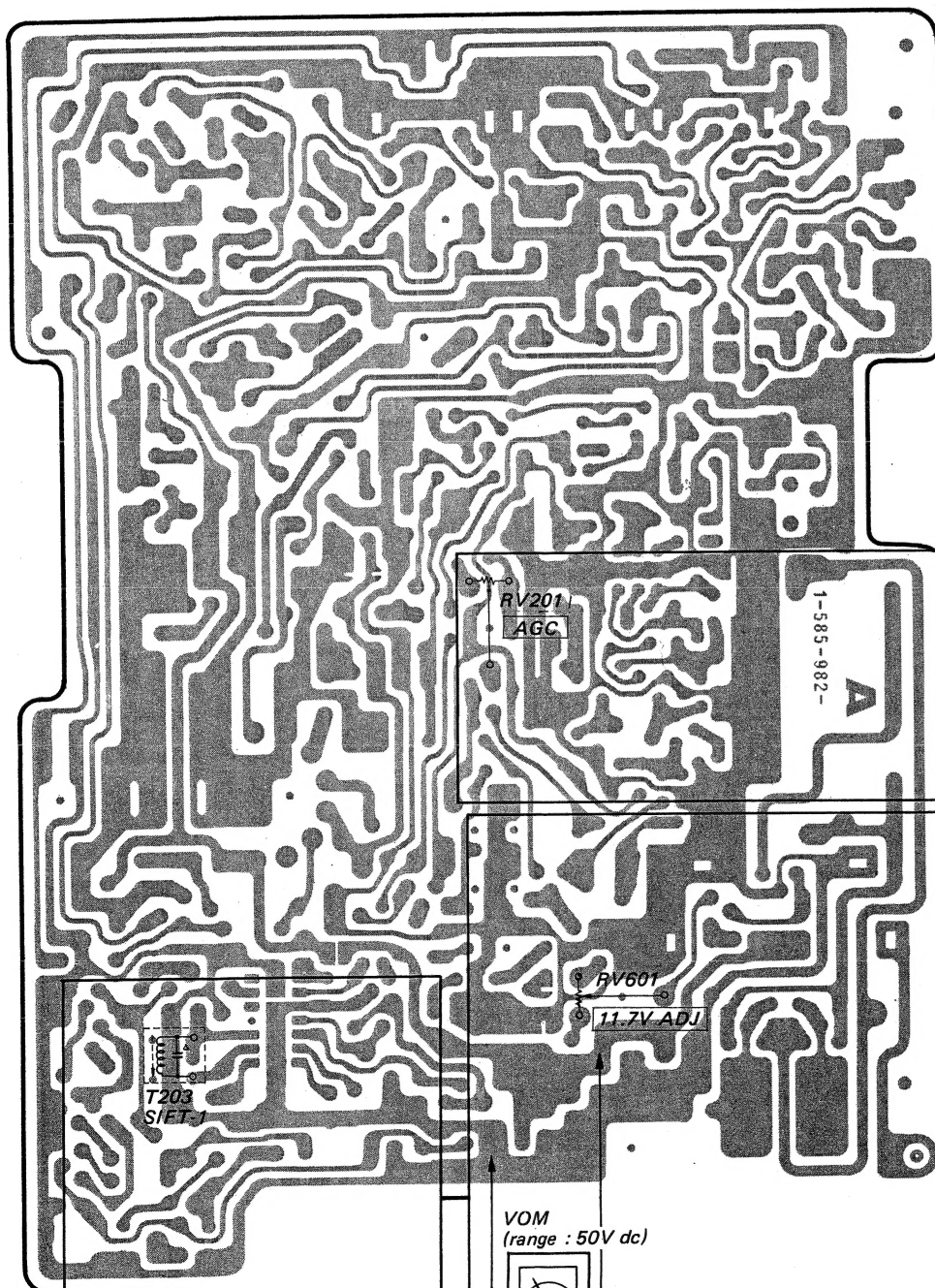
SECTION 3 CIRCUIT ADJUSTMENTS

3-1. A BOARD ADJUSTMENTS (1)

Note:

- The Equipment Required VOM
- These adjustment should be performed with rated power supply voltage, unless otherwise noted.

Preparations: 1. Tune in an off-air signal.
 2. Set V. HOLD control for correct sync.
 3. BRIGHT control) MAX. (fully clockwise)
 CONTR control)


AGC

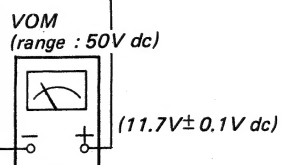
1. Tune in a weak off-air signal to obtain snow noise on the picture.
2. Set RV201 to the position where snow noise just disappears.
3. Readjust RV201 if snow noise or unstable picture persists in other channel.

11.7V ADJ

1. Preparations:
 - 1-1. Tune in an off-air signal.
 - 1-2. Set V.HOLD control for correct sync.
 - 1-3. BRIGHT control.....MAX. (fully clockwise)
CONTR control.....MIN. (fully counterclockwise)
2. Confirm that the ac power voltage is 220V
3. Adjust RV601 for 11.7V±0.1V dc.

SIF

1. Adjust T203 for the maximum clear sound.
2. Confirm that no buzz sound is heard.



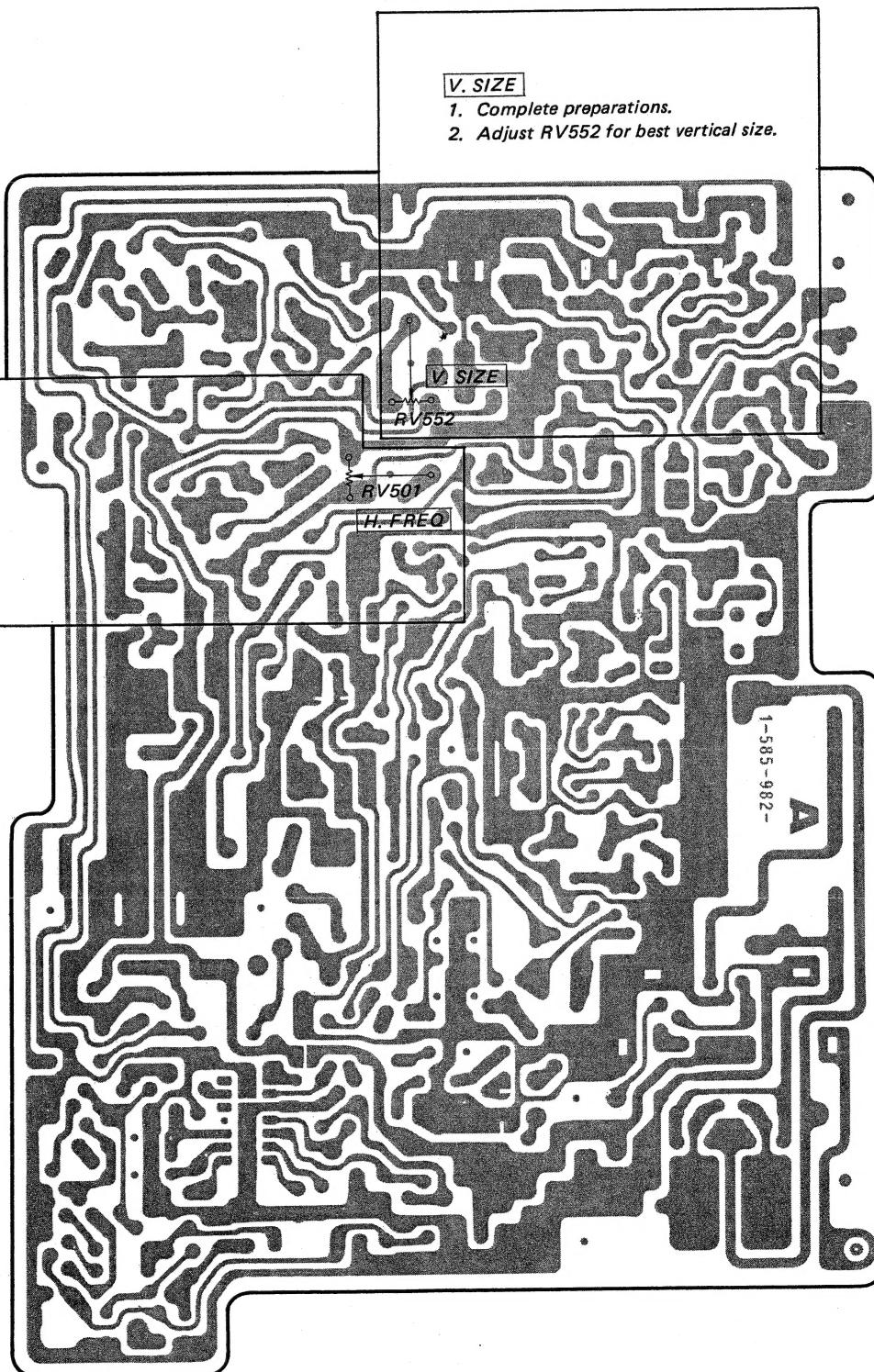
3-2. A BOARD ADJUSTMENTS (2)

H. FREQ

1. Complete preparations.
2. Adjust RV501 for correct horizontal sync.
3. Confirm that correct horizontal sync is observed, after the set is turned off and then on.

V. SIZE

1. Complete preparations.
2. Adjust RV552 for best vertical size.



SECTION 4
DIAGRAMS

42

1/4 WATT CARBON RESISTORS (A)

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-244-601-11	10	1-244-625-11	100	1-244-649-11	1.0k	1-244-673-11	10k	1-244-697-11	100k	1-244-721-11
1.1	1-244-602-11	11	1-244-626-11	110	1-244-650-11	1.1k	1-244-674-11	11k	1-244-698-11	110k	1-244-722-11
1.2	1-244-603-11	12	1-244-627-11	120	1-244-651-11	1.2k	1-244-675-11	12k	1-244-699-11	120k	1-244-723-11
1.3	1-244-604-11	13	1-244-628-11	130	1-244-652-11	1.3k	1-244-676-11	13k	1-244-700-11	130k	1-244-724-11
1.5	1-244-605-11	15	1-244-629-11	150	1-244-653-11	1.5k	1-244-677-11	15k	1-244-701-11	150k	1-244-725-11
1.6	1-244-606-11	16	1-244-630-11	160	1-244-654-11	1.6k	1-244-678-11	16k	1-244-702-11	160k	1-244-726-11
1.8	1-244-607-11	18	1-244-631-11	180	1-244-655-11	1.8k	1-244-679-11	18k	1-244-703-11	180k	1-244-727-11
2.0	1-244-608-11	20	1-244-632-11	200	1-244-656-11	2.0k	1-244-680-11	20k	1-244-704-11	200k	1-244-728-11
2.2	1-244-609-11	22	1-244-633-11	220	1-244-657-11	2.2k	1-244-681-11	22k	1-244-705-11	220k	1-244-729-11
2.4	1-244-610-11	24	1-244-634-11	240	1-244-658-11	2.4k	1-244-682-11	24k	1-244-706-11	240k	1-244-730-11
2.7	1-244-611-11	27	1-244-635-11	270	1-244-659-11	2.7k	1-244-683-11	27k	1-244-707-11	270k	1-244-731-11
3.0	1-244-612-11	30	1-244-636-11	300	1-244-660-11	3.0k	1-244-684-11	30k	1-244-708-11	300k	1-244-732-11
3.3	1-244-613-11	33	1-244-637-11	330	1-244-661-11	3.3k	1-244-685-11	33k	1-244-709-11	330k	1-244-733-11
3.6	1-244-614-11	36	1-244-638-11	360	1-244-662-11	3.6k	1-244-686-11	36k	1-244-710-11	360k	1-244-734-11
3.9	1-244-615-11	39	1-244-639-11	390	1-244-663-11	3.9k	1-244-687-11	39k	1-244-711-11	390k	1-244-735-11
4.3	1-244-616-11	43	1-244-640-11	430	1-244-664-11	4.3k	1-244-688-11	43k	1-244-712-11	430k	1-244-736-11
4.7	1-244-617-11	47	1-244-641-11	470	1-244-665-11	4.7k	1-244-689-11	47k	1-244-713-11	470k	1-244-737-11
5.1	1-244-618-11	51	1-244-642-11	510	1-244-666-11	5.1k	1-244-690-11	51k	1-244-714-11	510k	1-244-738-11
5.6	1-244-619-11	56	1-244-643-11	560	1-244-667-11	5.6k	1-244-691-11	56k	1-244-715-11	560k	1-244-739-11
6.2	1-244-620-11	62	1-244-644-11	620	1-244-668-11	6.2k	1-244-692-11	62k	1-244-716-11	620k	1-244-740-11
6.8	1-244-621-11	68	1-244-645-11	680	1-244-669-11	6.8k	1-244-693-11	68k	1-244-717-11	680k	1-244-741-11
7.5	1-244-622-11	75	1-244-646-11	750	1-244-670-11	7.5k	1-244-694-11	75k	1-244-718-11	750k	1-244-742-11
8.2	1-244-623-11	82	1-244-647-11	820	1-244-671-11	8.2k	1-244-695-11	82k	1-244-719-11	820k	1-244-743-11
9.1	1-244-624-11	91	1-244-648-11	910	1-244-672-11	9.1k	1-244-696-11	91k	1-244-720-11	910k	1-244-744-11

HARDWARE NOMENCLATURE

Screw:

P 3 x 10

L: Length in mm
D: Diameter in mm
Type of head

Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).

Nut, Washer, Retaining ring:

N 3

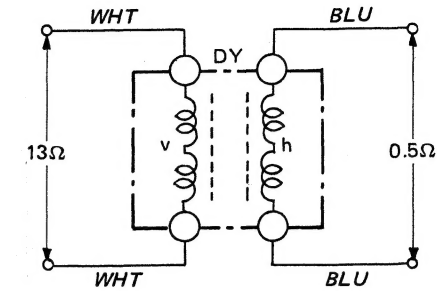
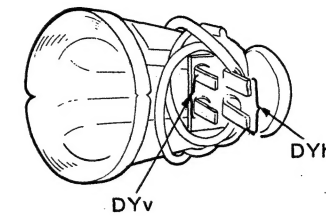
Diameter of usable screw or shaft
Reference designation

Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

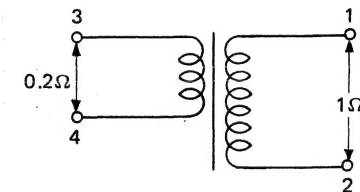
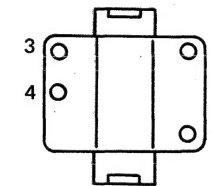
Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

DC RESISTANCE AND WINDING DIAGRAMS OF COILS AND TRANSFORMERS

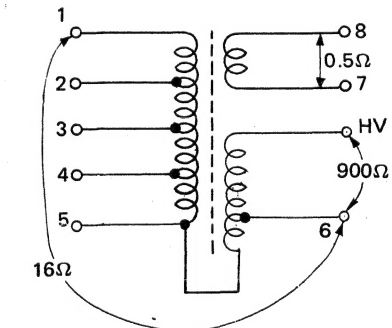
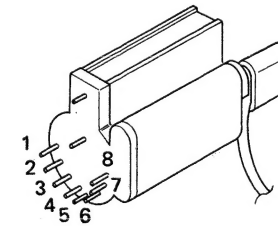
L901 (DY)



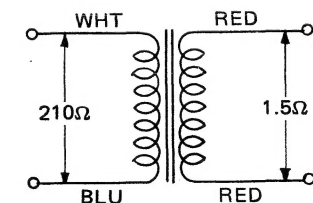
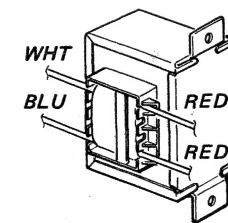
T501 (HDT)



T801 (FBT)



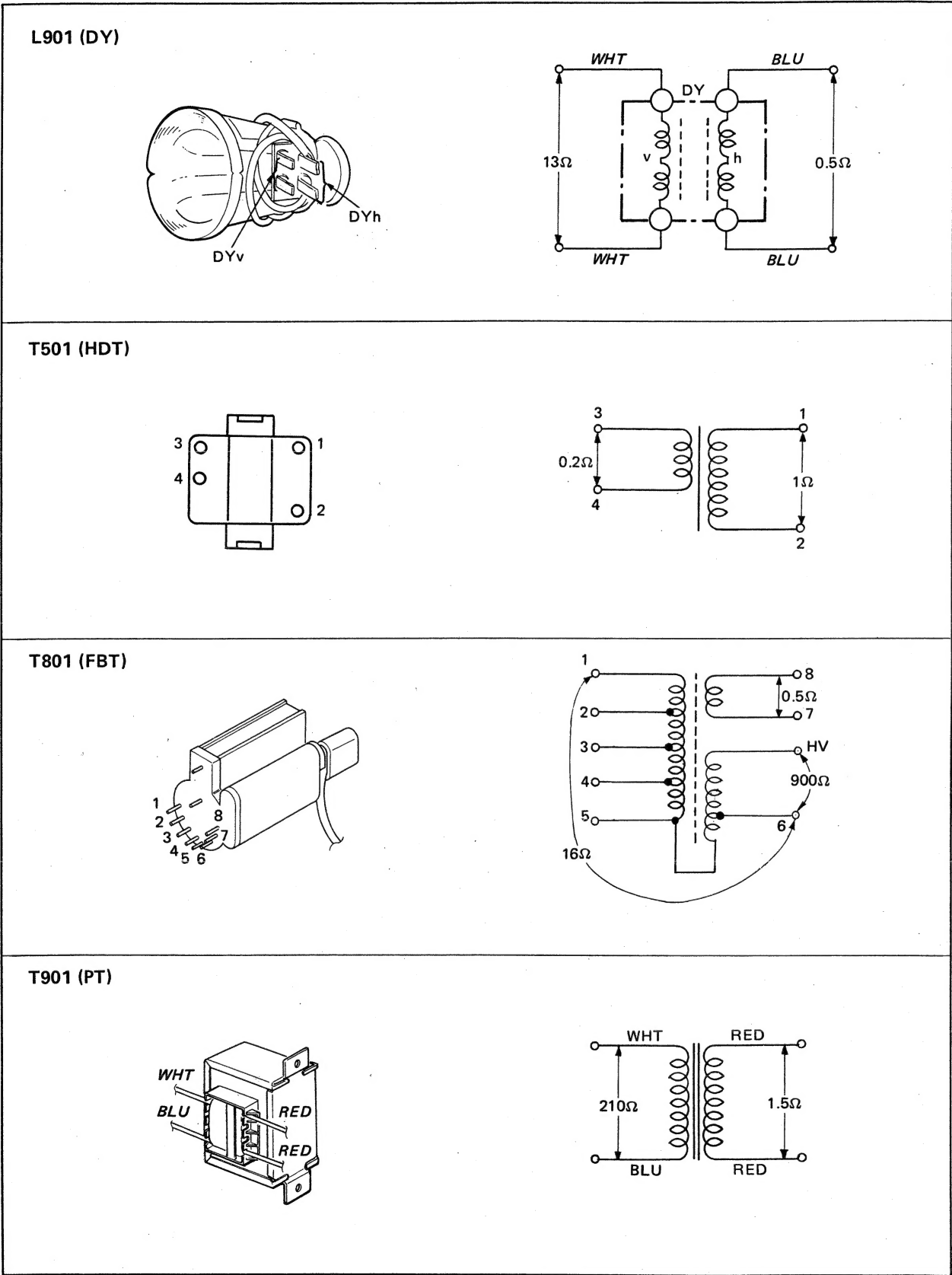
T901 (PT)



Note: DC resistance measurements shown with coils disconnected from circuit.

SECTION 4
DIAGRAMS

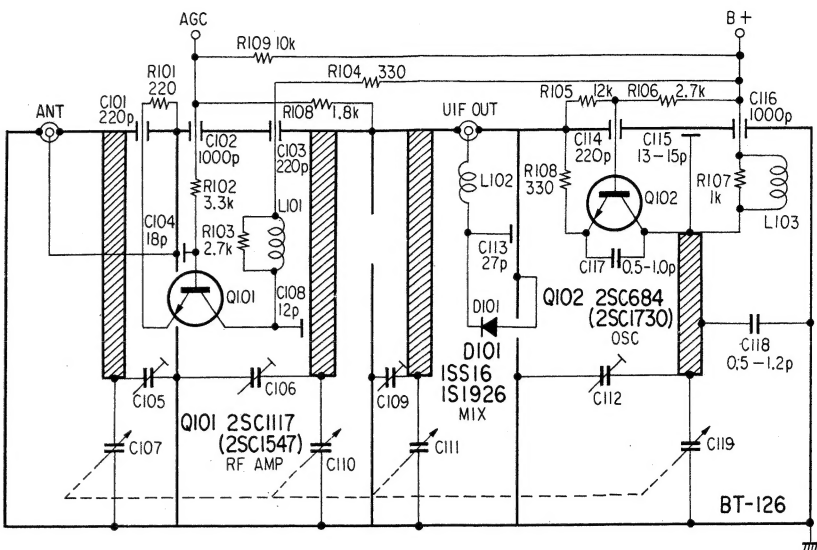
DC RESISTANCE AND WINDING DIAGRAMS OF COILS AND TRANSFORMERS



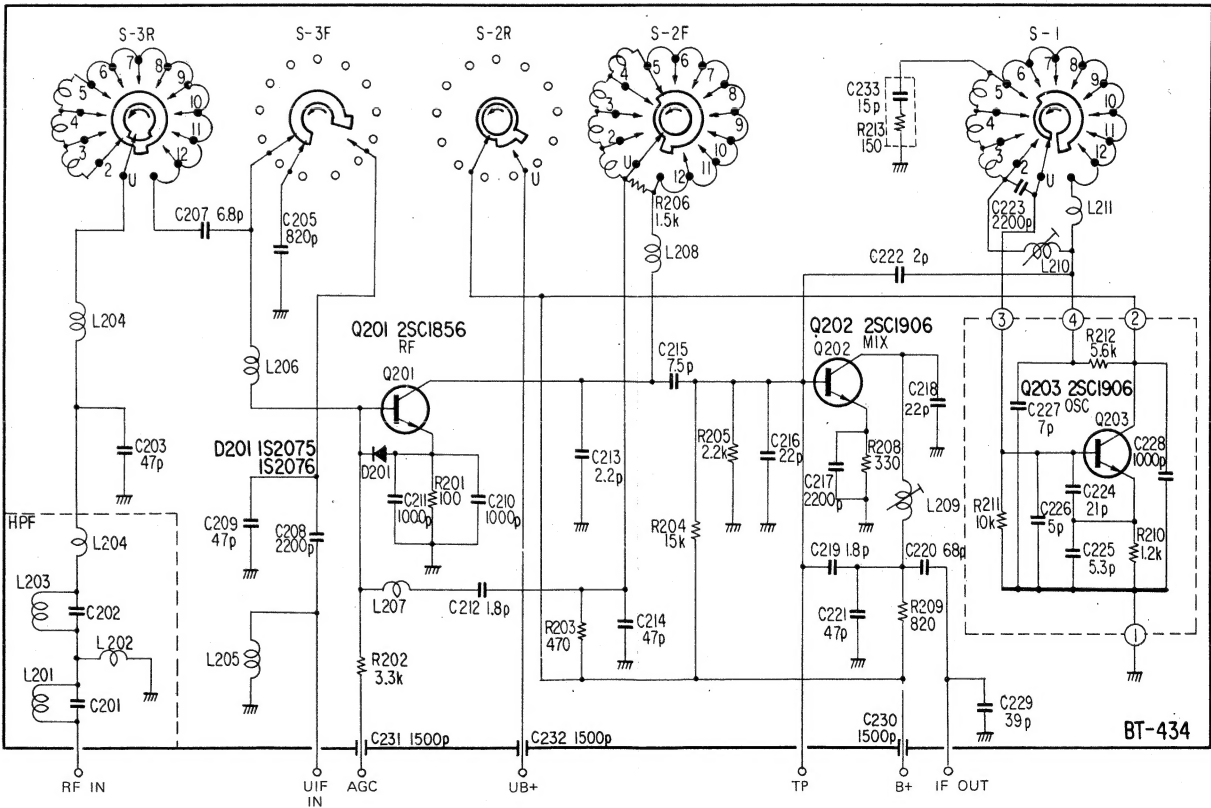
Note: DC resistance measurements shown with coils disconnected from circuit.

4.2. UHF AND VHF TUNER SCHEMATIC DIAGRAMS

— UHF tuner (BT-126) —

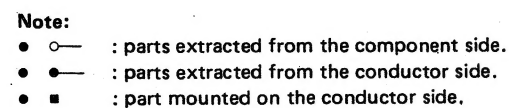


— VHF tuner (BT-434) —

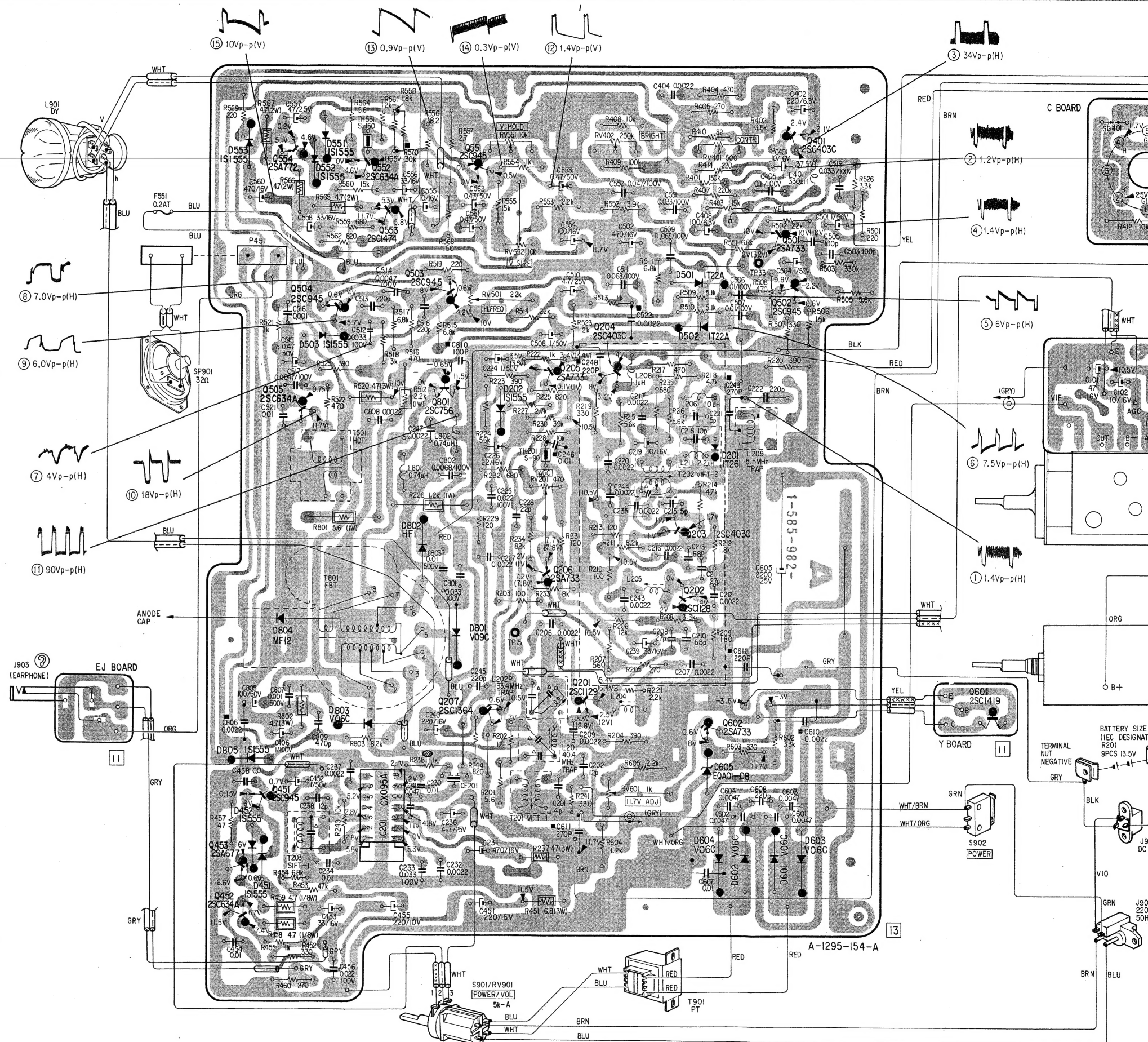


Note: Tuner reference numbers are not included in the Electrical Parts List (Page 17 — 19).

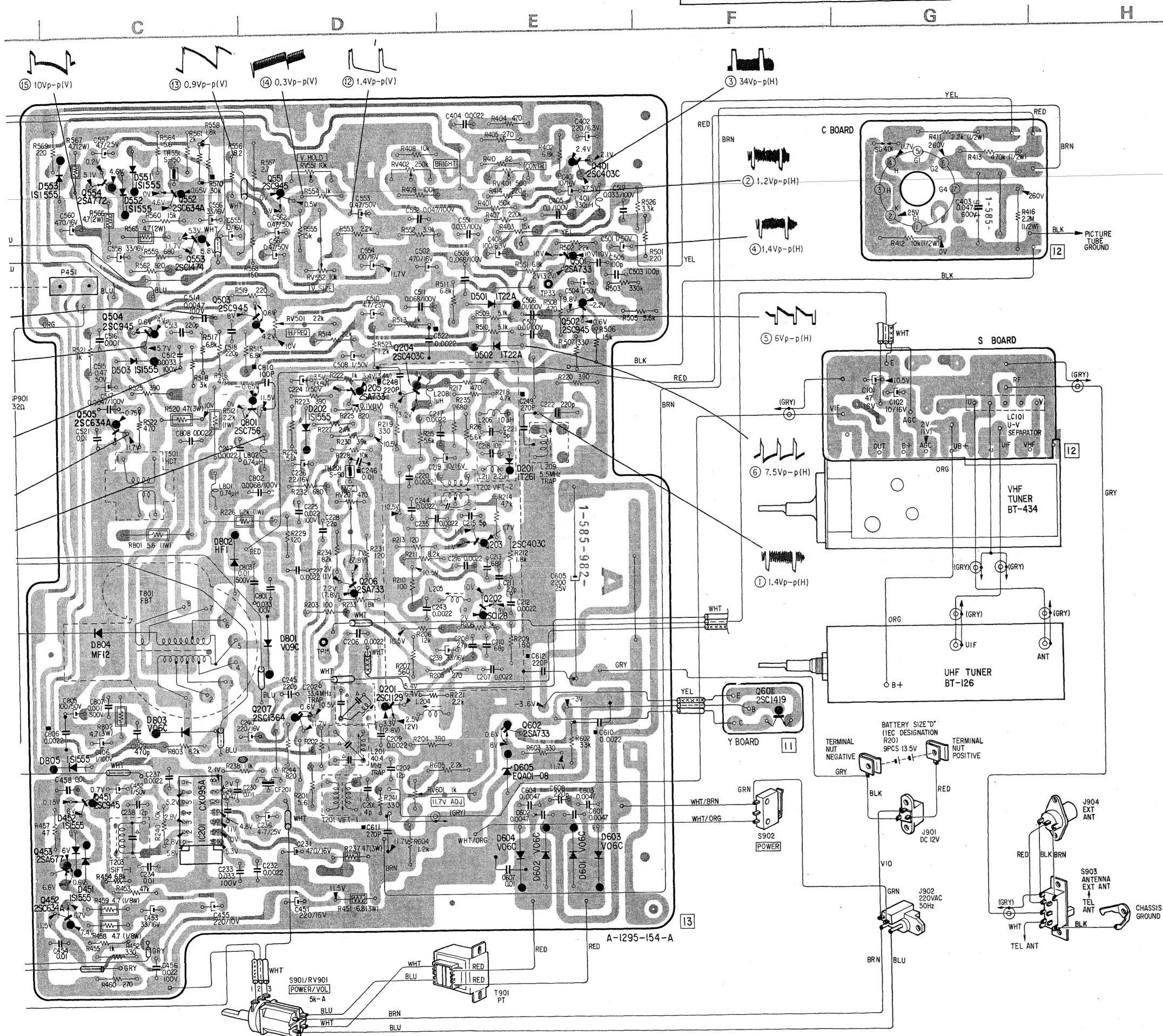
— A, C, EJ, S and Y Boards —



Q	D	ADJ
401	551 553 552	
552 551		
554		
553		
501		RV55
502 503 504	501	RV50
	502 503	
205 204 801		
505	202	
	201	
		RV20
203	802	
206		
202	804 801	
201 601 207 602	803	
	805 605	
451 IC201		RV601
453	452 451 604 602 601 603	T203
452		



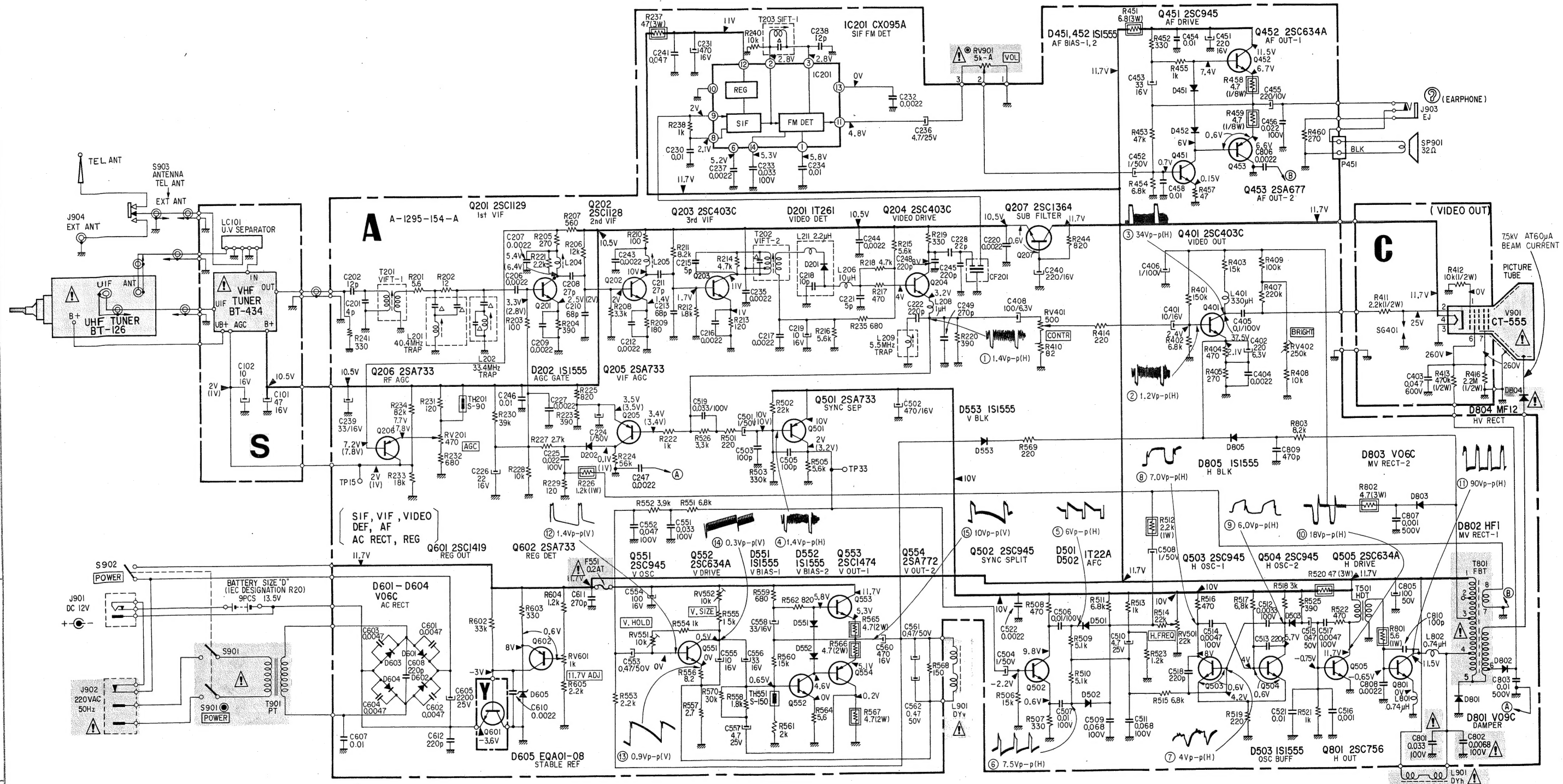
TV-511E TV-511E



TV-511E TV-511E

Note: The components identified by shading and Δ mark are critical for safety. Replace only with part number specified.

4.4. SCHEMATIC DIAGRAM



Note:

- All capacitors are in μF unless otherwise noted. P: μMFD 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, $\frac{1}{4}\text{W}$ unless otherwise noted. k: 1000 Ω , M: 1000k Ω .
- Δ : internal component.

- \square : nonflammable resistor.
- \square : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- \odot : S901 is ganged to RV901.

- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- $\text{B}+$ bus.

- Voltages are taken under tuned conditions with VOM (20 k Ω /V).
- () : detuned
- BRIGHT control MAX
- CONTR control MIN

SECTION 5 EXPLODED VIEW

Note:

- 023-008-2 ©
b Ass'y, control; POWER PULL ON/VOL

X-4023-040-0 (L)
Cabinet Ass'y, front;
including parts marked ○ A — ○ H

4-023-009-00 (A)
Retainer, anode cap

4-023-011-00 (A)

○ D
4-023-013-00 (A)

○ G
 4-023-036-00 (G)

4-023-029-00 (D)
Protector


Ball, steel; 4mm dia

X-4023-039-0 (A)
Knob Ass'y, VHF channel selector.

-16-

SECTION 6

ELECTRICAL PARTS LIST

Note: The components identified by shading and  mark are critical for safety. Replace only with part number specified.

TV-511E TV-511E

Ref. No.	Part No.	Description
C552	1-108-385-12	(A) 0.047 100V mylar
C553	1-121-726-11	(A) 0.47 50V elect
C554	1-121-415-11	(A) 100 16V elect
C555	1-131-158-11	(B) 10 16V tantalum
C556	1-121-404-11	(A) 33 16V elect
C557	1-121-395-11	(A) 4.7 25V elect
C558	1-121-403-11	(A) 33 16V elect
C560	1-121-940-11	(B) 470 16V elect
C561, 562	1-121-726-11	(A) 0.47 50V elect
C601-604	1-101-003-11	(A) 0.0047
C605	1-119-448-11	(C) 2200 25V elect
C607	1-101-004-11	(A) 0.01
C608	1-102-977-11	(A) 220p
C610	1-102-121-11	(A) 0.0022
C611	1-102-984-11	(A) 270p
C612	1-102-977-11	(A) 220p
C801	(A) 1-108-383-12	(A) 0.033 100V mylar
C802	(A) 1-108-375-12	(A) 0.0068 100V mylar
C803	1-102-050-11	(A) 0.01 500V
C805	1-123-059-11	(B) 100 50V elect
C806	1-102-121-11	(A) 0.0022
C807	1-102-038-11	(A) 0.001 500V
C808	1-102-121-11	(A) 0.0022
C809	1-102-823-11	(A) 470p
C810	1-102-973-11	(A) 100p

RESISTORS

All resistors are in ohms. Common 1/4W carbon resistors are omitted. Refer to the list on page 7 for their part numbers. All adjustable and variable resistors have characteristic curve B, unless otherwise noted. k : 1000Ω, M : 1000kΩ

R226	1-213-144-11	(A) 1.2k	1W	metal oxide (nonflammable)
R237	1-206-527-11	(B) 47	3W	metal oxide (nonflammable)
R411	1-202-581-31	(A) 2.2k	1/2W	composition
R412	1-202-597-31	(A) 10k	1/2W	composition
R413	1-202-637-31	(B) 470k	1/2W	composition
R416	1-202-723-11	(A) 2.2M	1/2W	composition
R451	1-207-655-11	(B) 6.8	3W	metal oxide (nonflammable)
R458, 459	1-211-401-11	(A) 4.7	1/8W	carbon (nonflammable)

Ref. No.	Part No.	Description
R512	1-213-147-11	(B) 2.2k 1W metal oxide (nonflammable)
R520	1-206-527-11	(B) 47 3W metal oxide (nonflammable)
R565-567	1-207-624-11	(B) 4.7 2W metal oxide (nonflammable)
R801	1-212-369-11	(B) 5.6 1W metal oxide (nonflammable)
R802	1-207-653-11	(B) 4.7 3W metal oxide (nonflammable)
RV201	1-224-641-XX	(B) 470, adjustable; AGC
RV401	1-226-074-00	(B) 500, variable; CONTR
RV402	1-226-076-00	(B) 250k, variable; BRIGHT
RV501	1-224-646-XX	(B) 22k, adjustable; H. FREQ
RV551	1-226-075-00	(B) 10k, variable; V. HOLD
RV552	1-224-645-XX	(B) 10k, adjustable; V. SIZE
RV601	1-224-642-XX	(B) 1k, adjustable; 11.7V ADJ
RV901 } S901 }	(A) 1-226-205-00	(F) 5k-A, variable; POWER PULL ON/VOL

MISCELLANEOUS

D804	(A) 1-531-065-00	(D) High-voltage Selenium Rectifier, MF12
F551	(A) 1-532-387-00	(B) Fuse, 0.2AT
J901	1-507-559-00	(B) Jack, power; DC 12V
J902	(A) 1-509-510-00	(C) Connector, 2-p; power; AC 220V
J903	1-507-251-XX	(A) Jack, EARPHONE
J904	1-526-563-00	(C) Socket, EXT ANTENNA
S901	(A) - - - - -	included in RV901
S902	1-516-096-XX	(C) Switch, miniature; POWER
S903	1-516-777-XX	(B) Switch, slide; antenna
SG401	1-519-063-XX	(A) Spark Gap
SP901	1-502-274-XX	(E) Speaker, 32Ω
V901	(A) 8-731-106-05	(O) Picture Tube, CT-555

1-501-174-00	(G) Antenna, telescopic
(A) 1-508-202-52	(C) Cap, anode
1-526-521-XX	(B) Socket, picture tube
1-534-630-23	(B) Coaxial Cable with Plug
1-534-784-12	(B) Coaxial Cable with Plug

PACKING MATERIALS AND ACCESSORIES

Part No.	Description
1-504-059-11	(C) Earphone, ME-20H
(A) 1-534-840-XX	(E) Cord, power
3-701-360-02	(A) Label, tack
3-701-625-00	(A) Bag, polyethylene
4-022-645-00	(B) Bag, protection
4-023-067-00	(C) Cushion, upper
4-023-068-00	(C) Cushion, lower
4-023-091-00	(D) Carton
4-495-699-11	(B) Manual, instruction

Note: The components identified by shading and (A) mark are critical for safety. Replace only with part number specified.

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